2. Adjustment

2-1 Operation Without Housing Assembly

1. Remove the Housing Ass'y from the recorder unit.
2. Connect the mechanical chassis to the recorder circuit to supply voltage.
3. Set to Unload mode.
4. Press the S/W Push (Keep ON status) and make loading.
5. Push the Play key.

Note : For the removals of the Housing Ass'y, refer to 3-2.

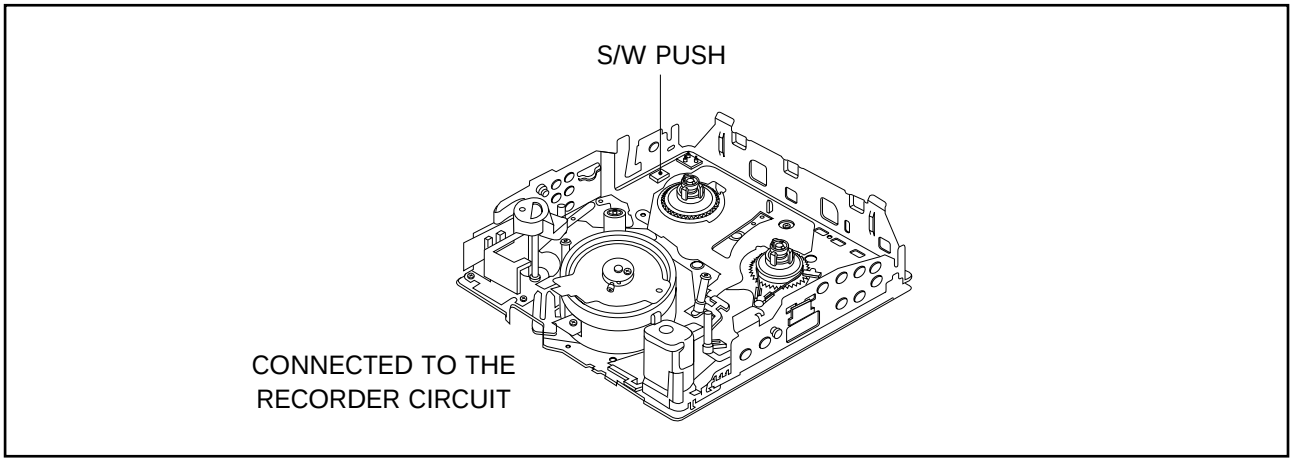

Fig. 2-1

2-2 Setting Mechanical Mode (Without Recorder Circuit)

1. Set the power-supply output to approx. 3V.
2. Choose the polarity (depending on whether loading or unloading).
3. Supply the voltage to the Motor Loading, and set to the desired mode.

Table 2-1

Drum side	Opposite side	Movement of Chassis
+	–	Loading
–	+	Unloading

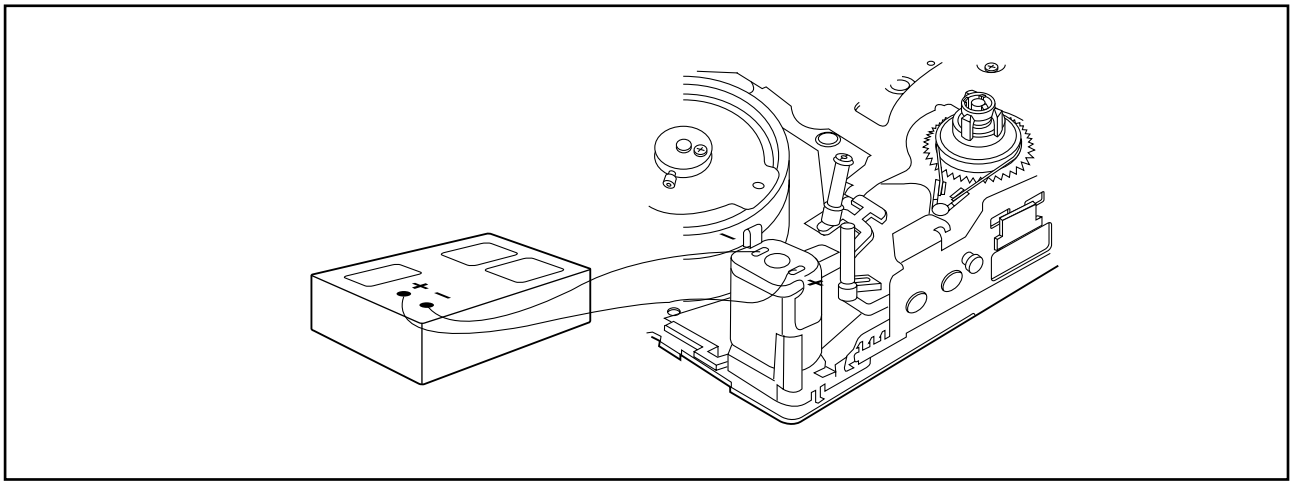

Fig. 2-2

2-3 Maintenance

Carry out the following periodic maintenance checks
in order not only to fully exhibit the functions and operate the set, but also for the equipment and tape.
After repairing, service the set as follows :

2-3-1 Cleaning of Drum Assembly

1. Gently apply lens tissue soaked in ethyl alcohol to the Drum assembly.
   Clean the Upper Drum assembly while rotating it slowly counterclockwise (by hand).

Note : Do not rotate the motor by power or rotate the Upper Drum assembly clockwise. Also, the Head tip will be damaged if the lens tissue is moved in a perpendicular direction. Be sure to follow these instructions when cleaning the Drum Ass'y.

2-3-2 Cleaning of Tape Path

1. In EJECT mode, clean the tape path system (from Pole Tension P1 through Pole Review P7, Pinch Roller and Capstan Shaft) and the Lower Drum. Using the lens tissue soaked in ethyl alcohol.

Note : Make sure that no oil or grease adheres to the lens tissue.

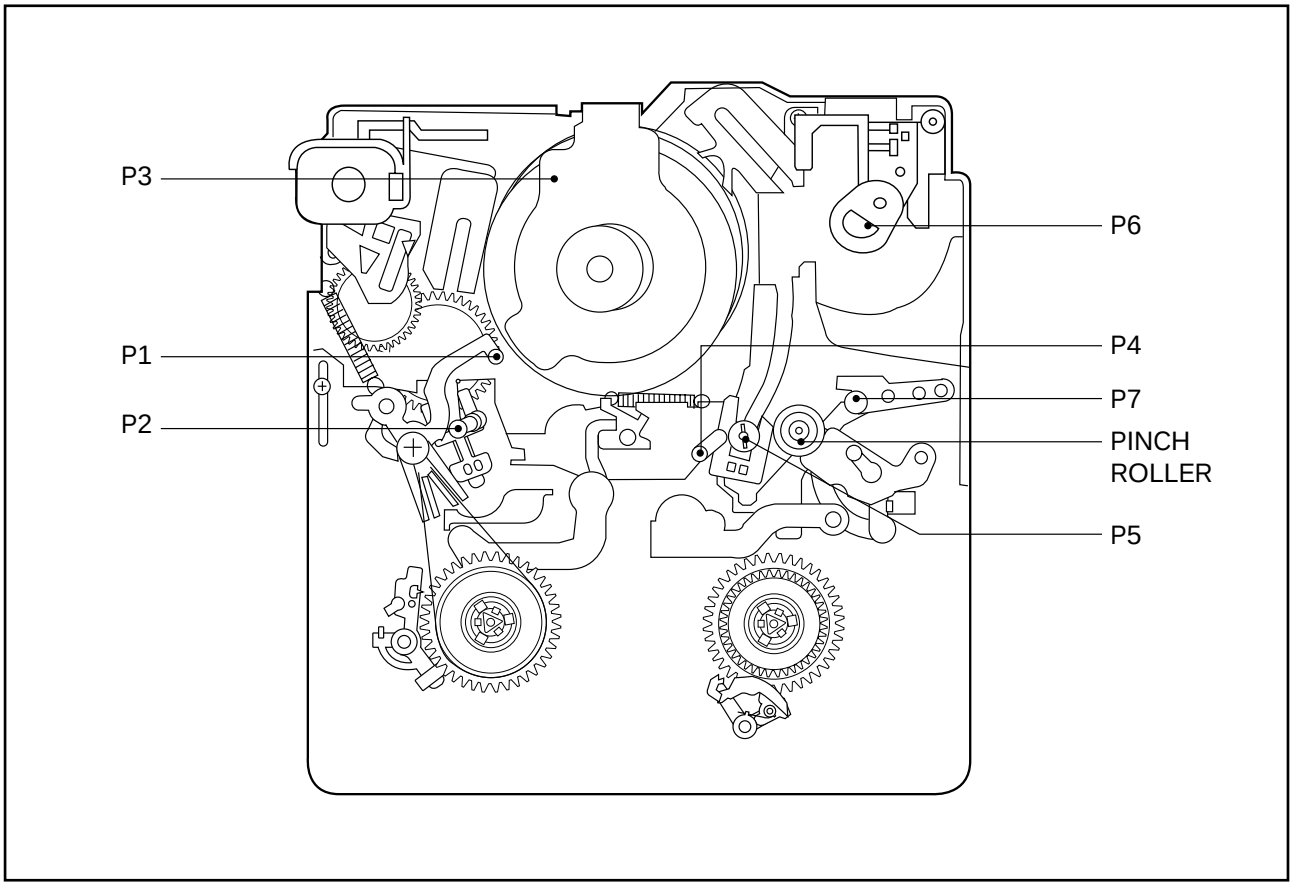

Fig. 2-3

2-3-3 Periodic Maintenance and Check List

When overhauling, refer to the following table.

Table 2-2

Maintenance and check items		Hours of use (H)										Remarks
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	
Tape path system	Cleaning of tape path	●	●	●	●	●	●	●	●	●	●	
	Cleaning and degaussing of drum assembly	●	●	●	●	●	●	●	●	●	●	
Driving system	Capstan Shaft		▲		▲		▲		▲		▲	Be absolutely careful not to get oil on the tape path surface.
	Gear Capstan		▲		▲		▲		▲		▲	
	Gear Pulley Shaft		▲		▲		▲		▲		▲	
	Belt Timing		◆		◆		◆		◆		◆	
	Motor Loading		◆		◆		◆		◆		◆	
Performance	Abnormal noise		◆	◆	◆	◆	◆	◆	◆	◆	◆	
Confirmation	Back tension measurement		◆		◆		◆		◆		◆	
	Brake system		◆		◆		◆		◆		◆	
	PB, REV torque measurement		◆		◆		◆		◆		◆	

● : Cleaning ▲ : Oil ◆ : Confirmation

✲ When lubricating bearings, be sure to keep the oil free of dust. (Oil contaminated with dust might cause the bearings to wear out or seize.)

✲ A “drop” of oil is defined as the amount attached to the tip of a ø 2mm stick as shown in Fig. 2-4.

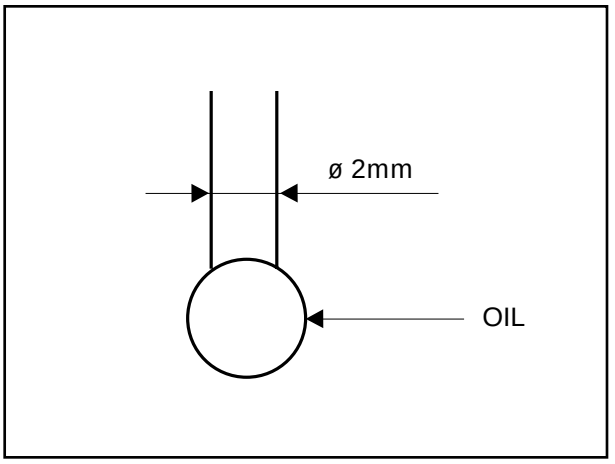

Fig. 2-4

2-4 Mechanical Check and Adjustment

2-4-1 Tension Regulator Adjustment

2-4-1 (A) DISASSEMBLY

1. Refer to 3-2 to remove the Housing Ass'y.

2-4-1 (B) ADJUSTMENT

1. Set to PB mode (without cassette tape).
2. Check that the overlap between external surface of Chassis Sub and external surface of Arm Tension is
   0 ~ 1mm. (Fig. 2-5)
3. If necessary, proceed to step 4.
4. If the Arm Tension 1 is located inside the position specified, adjust the Band Adjust Tension 2 toward arrow A.
   If it is located outside, adjust toward arrow B.

Note : Check if the arm tension can be moved toward arrow C in PB mode. Use the tape which is fed to the end.

2-4-1 (C) REASSEMBLY

1. Refer to 3-2, to mount the Housing Ass'y.

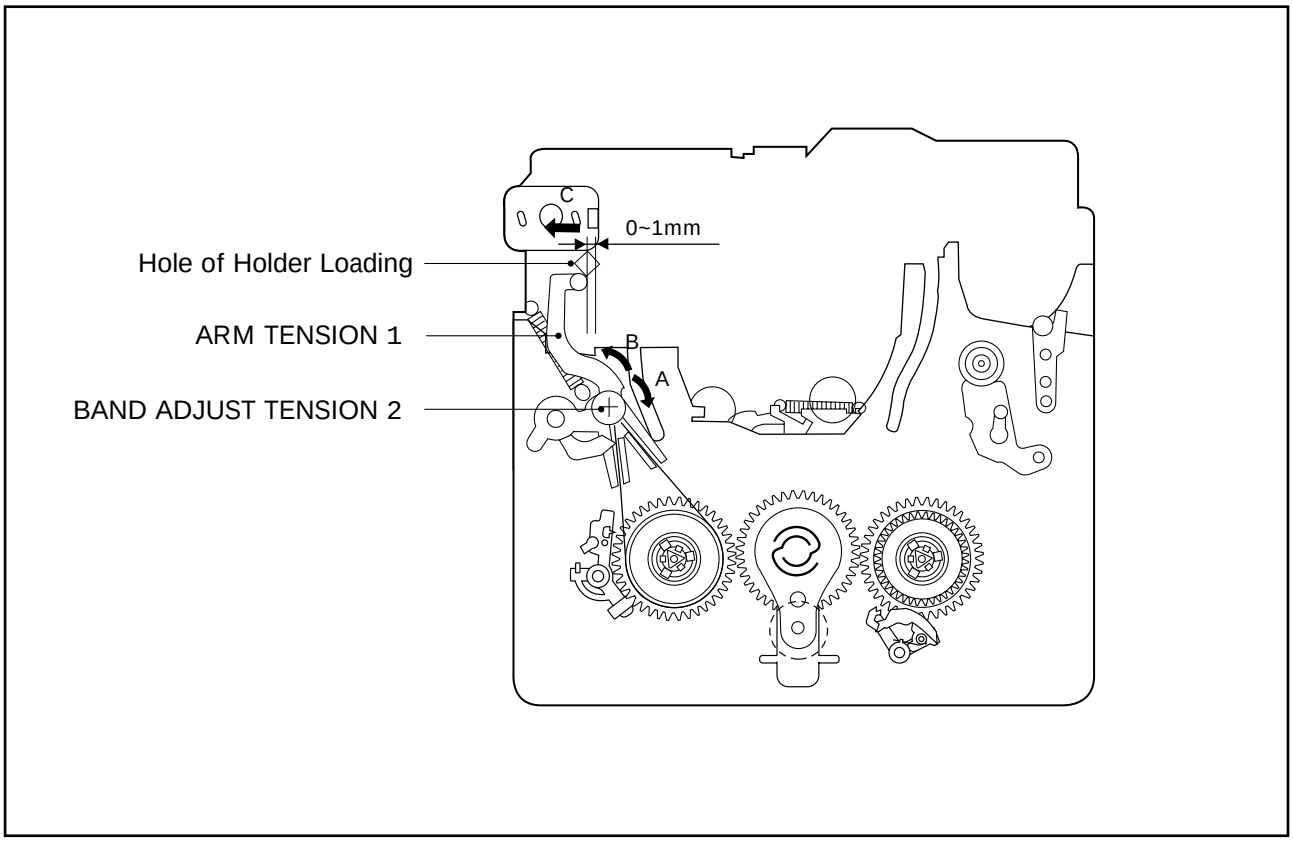

Fig. 2-5

2-4-2 Back Tension Adjustment

1. Set up the cassette-torque tape.
2. Set to PB mode and check that the torque value of Reel S is 9 ± 1.5g.cm.
   (If necessary, proceed to step 3 or 4).
3. If the value is too high : While pushing the adjustment claw (rack shape) of Slider Tension toward arrow C, shift the meshing position (with the claw of Slider Tension toward arrow A).
   See Fig. 2-6.
4. If the value is too low : While pushing the adjust ment claw (rack shape) of Slider Tension toward arrow C, shift the meshing position (with the claw of Slider Tension toward arrow B).
   See Fig. 2-6.

Note : When shifting the position of hooks, remove the cassette torque tape.

2-4-3 PB/REV Torque Check

1. Set up the cassette torque tape.
2. Set to PB mode, and check that the torque vlaue of Reel T is 9 ± 3g.cm.
3. Set to REV mode, and check that the torque value of Reel S is 25 ± 5g.cm.
4. If necessary, replace the defective reel assembly.

*** Remarks :** If the cassette torque tape is recorded both in the LP/SP modes by mistake, the torque at the switching point between SP/LP modes becomes unstable.
In that case, do the torque adjustment in REC mode.

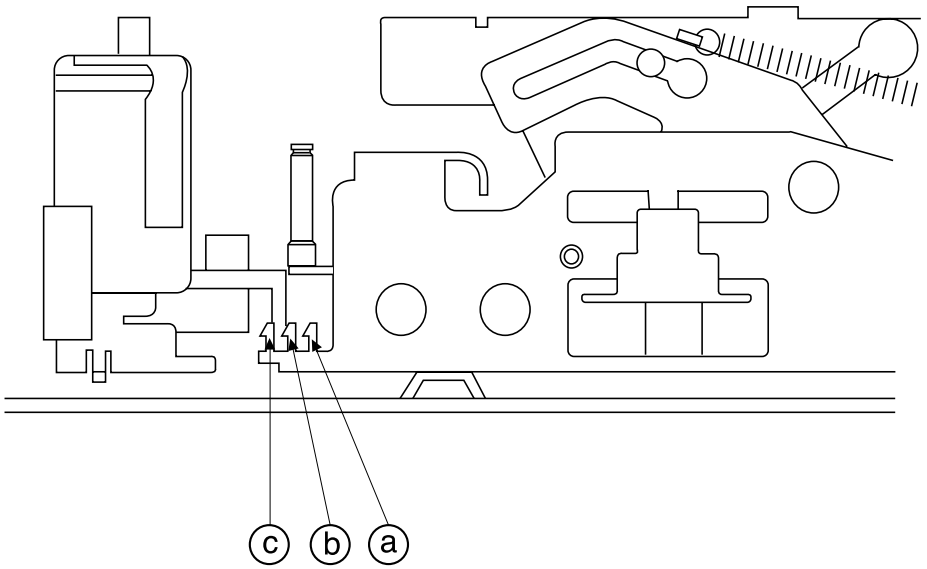

Fig. 2-6

2-4-4 Reel Table Height Check

2-4-4 (A) REMOVAL

1. Refer to 3-2 ; Remove the Housing Ass'y.
2. Refer to 3-4 ; Remove the Idler Ass'y.

2-4-4 (B) CHECK

1. Using the slide calipers, check the following distances: The upper surface of the P.C.B Reel to the Reel S table resting surface and the Reel T table resting surface should each be 5.7 ± 0.2mm.

2-4-4 (c) MOUNTING

1. Refer to 3-4. Mount the Idler Ass'y.
2. Refer to 3-2. Mount the Housing Ass'y.

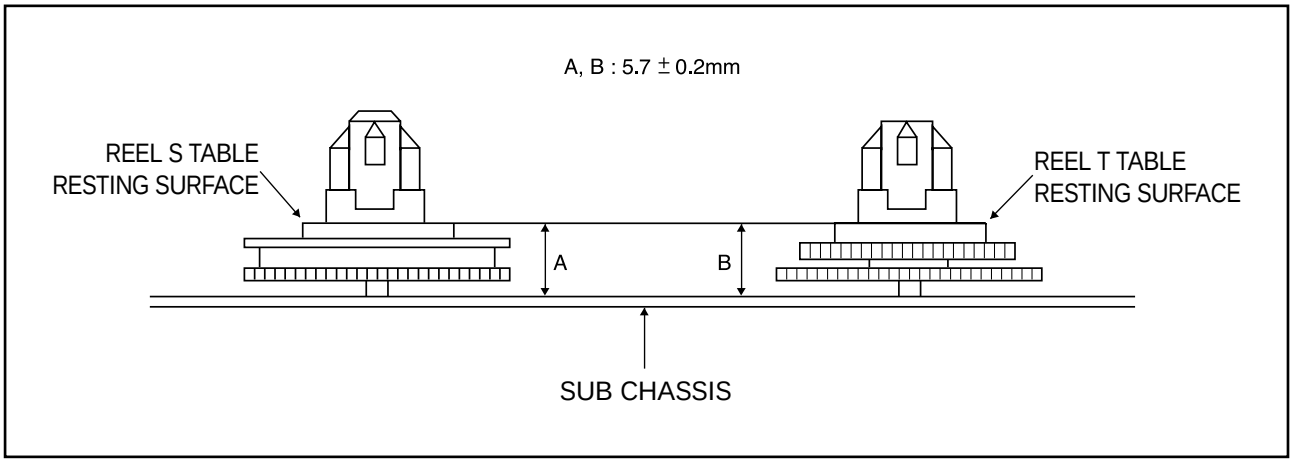

Fig. 2-7

2-5 Tape Path Adjustment

2-5-1 Preparation for Adjustment

1. Clean the tape running surface (Poles, Drum, Capstan Shaft, Pinch Roller).
2. Refer to the Service Manual (of camcorder). Observe the PB RF signal and Head Switching Pulse on an oscilloscope.
3. Play back the alignment tape.
4. Check that the waveform of the RF signal is flat both at the inlet and outlet (Fig. 2-8 A). If not flat (B or C in Fig. 2-8), do adjustments 2-5-2 through 2-5-5.

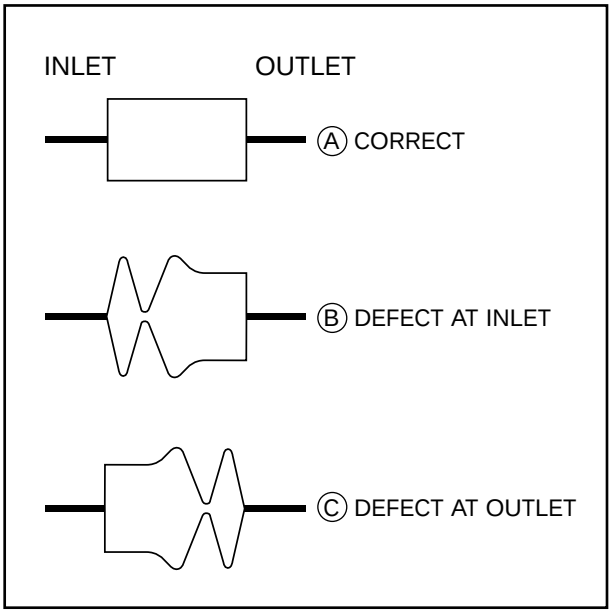

Fig. 2-8

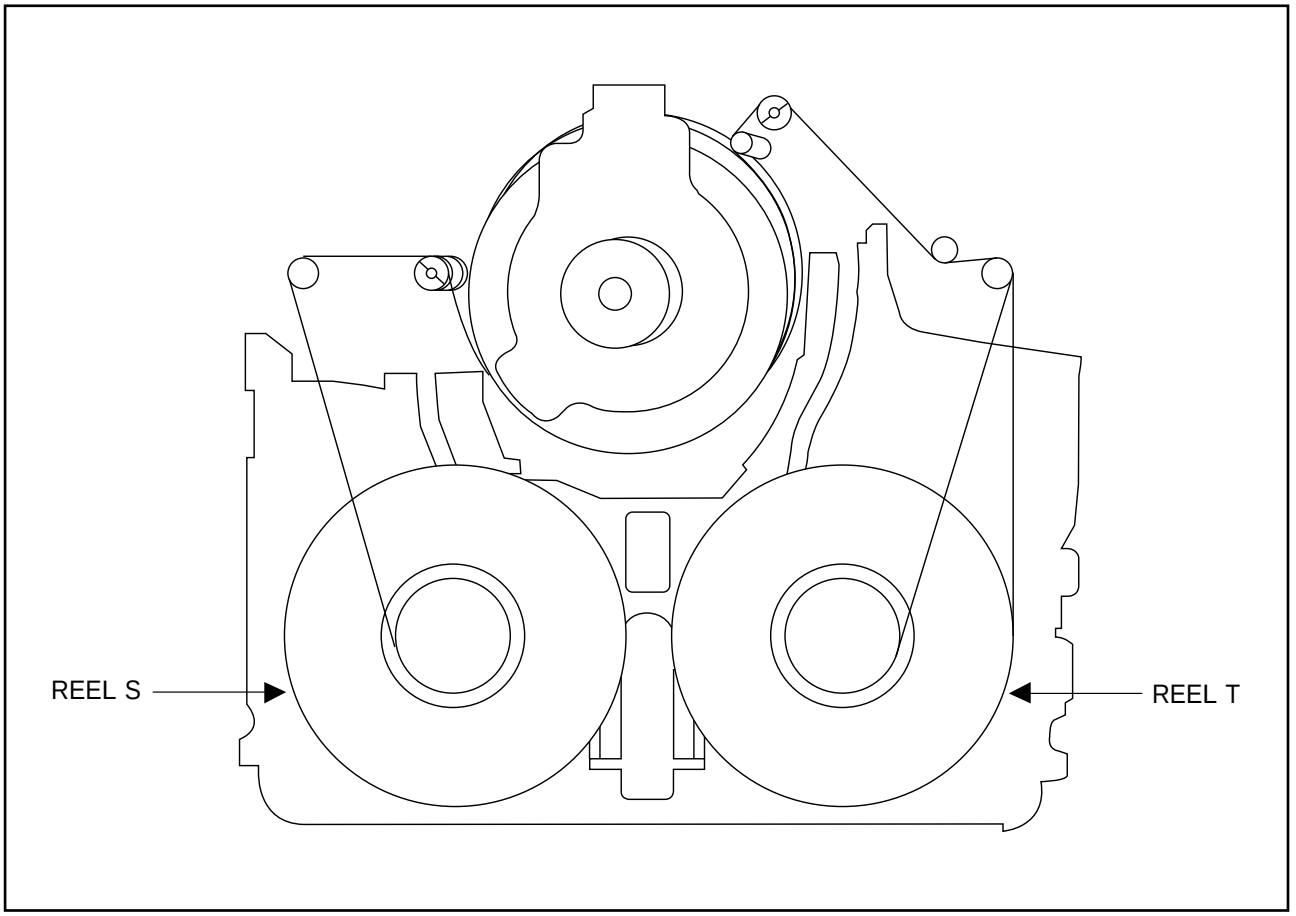

Fig. 2-9

2-5-2 Tracking Adjustment

1. Play back the alignment tape. (Tracking B or C)
2. Turn P2 to flatten the waveform at the inlet.
3. Turn P5 to flatten the waveform at the outlet.

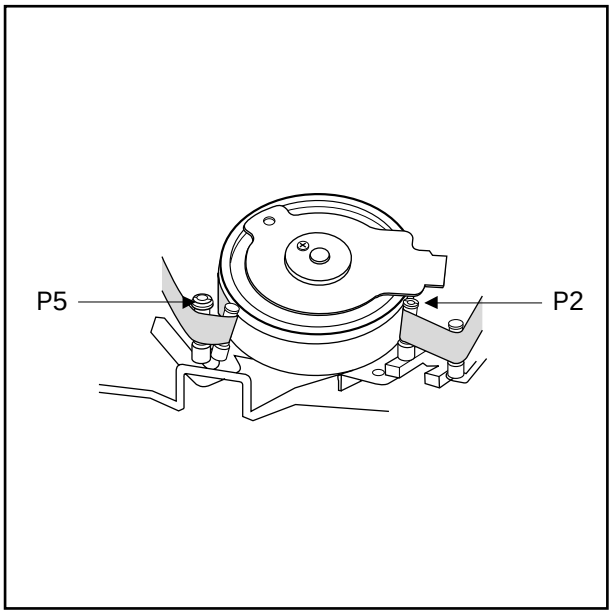

Fig. 2-10

2-5-3 Not Adjustment

1. Play back the alignment tape, and confirm that the tape is not loosened between the Capstan Motor and Cuide Roller T.
2. Set to REV mode and observe the outlet waveform of PB RF signal. (Fig. 2-12)

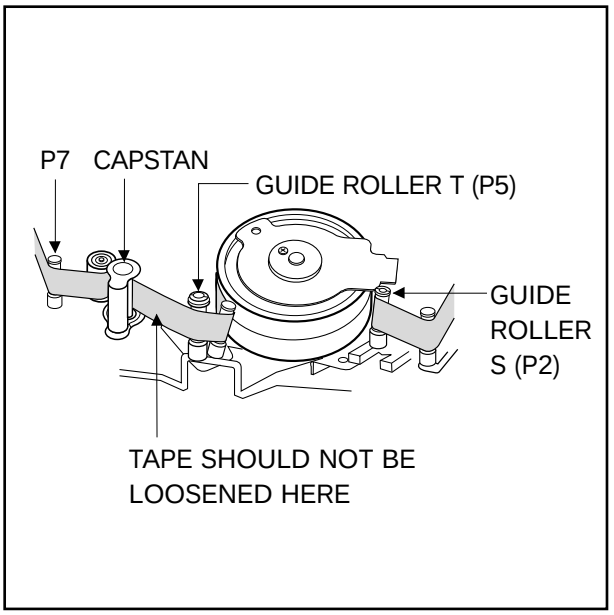

Fig. 2-11

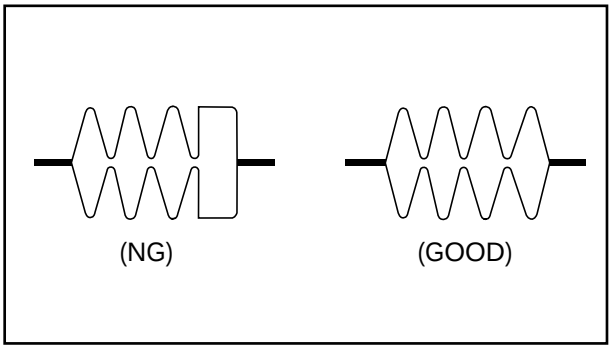

Fig. 2-12

2-5-4 Check After Adjustment

2-5-4 (A) TRACKING CHECK

1. Play back the alignment tape.
2. Then, Confirm that the minimum amplitude value (E min.) is 65% of the maximum value (E max.) or larger. (Fig. 2-13)
3. Confirm that no large fluctuations occur on the waveform. (Fig. 2-14)

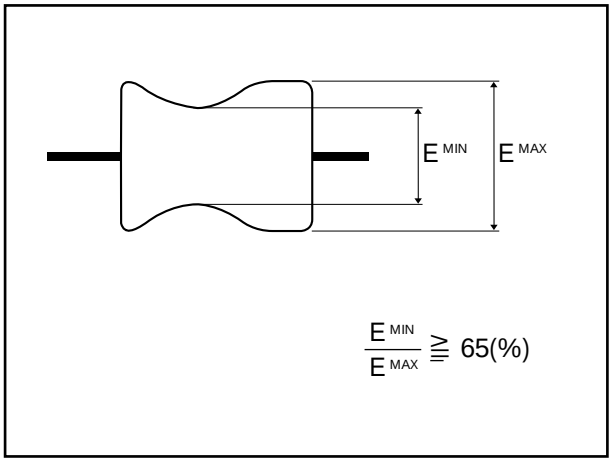

Fig. 2-13

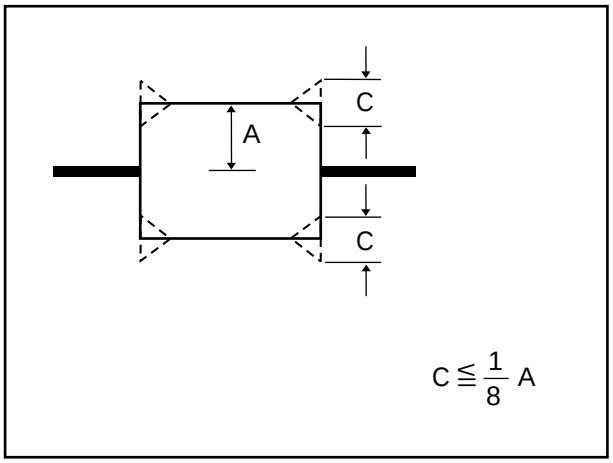

Fig. 2-14

2-5-4 (B) CUE AND REV CHECK

1. Play back the alignment tape, and set to REV mode. Confirm that the waveform peaks have a uniform pitch. (Fig. 2-15 Ⓐ)
2. Set to CUE mode.
   Confirm that the waveform peaks still have a uniform pitch. (Fig. 2-15 Ⓑ)

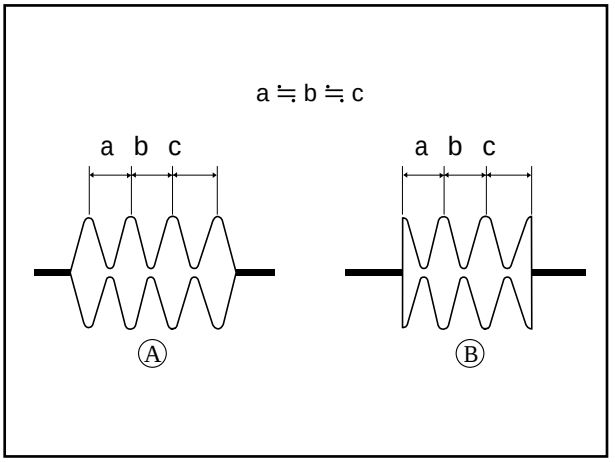

Fig. 2-15

2-5-4 (C) RISE TIME CHECK

1. Play back the alignment tape.
2. Set to playback mode, and confirm that the waveform of PB RF signal rises flatly within 3 seconds. Also confirm that the tape is not loosened or curled around the Pinch Roller. (Fig. 2-16)
3. Run the tape in CUE/REV and FF/REW modes, then playback. Confirm the waveform of PB RF signal rises flatly within 3 seconds. Also confirm that the tape is not loosened or curled around the Pinch Roller.
4. Repeat steps 2. and 3.

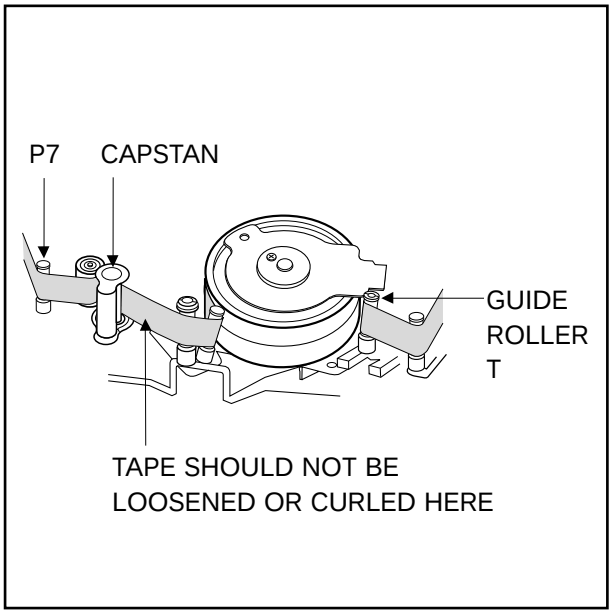

Fig. 2-16

2-5-4 (D) TAPE PATH CHECK

1. In CUE and REV modes, check that the tape is not too curled around the P2 Upper Flange, P5 Upper Flange, and P7 Upper/Lower Flanges. (Fig. 2-17)

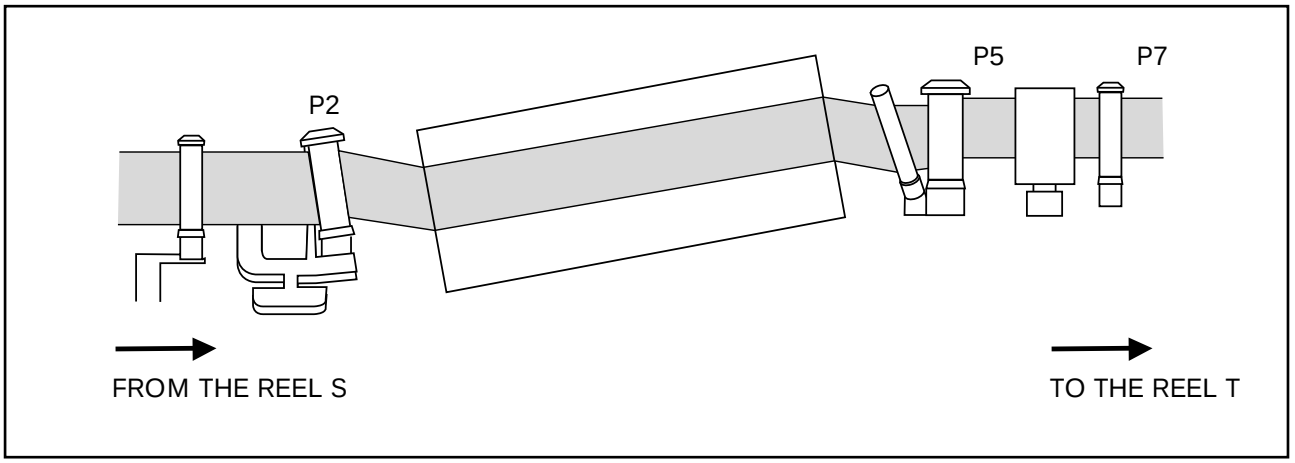

Fig. 2-17